

Slavjansky.

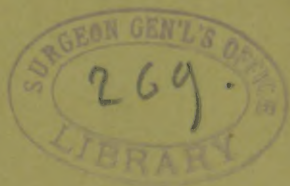
ol

Rupture of Uterus During Pregnancy.

PORRO'S OPERATION—CURE.

Translated by ROBERT T. WILSON, M. D., Assistant Surgeon to the Hospital for the Women of Maryland, Baltimore, etc., and CARA S.

HARVEY, A. R. C. P., England.



[Reprint from VIRGINIA MEDICAL MONTHLY, September, 1896.]

Rupture of Uterus During Pregnancy.

PORRO'S OPERATION—CURE.

Translated by ROBERT T. WILSON, M. D., Assistant Surgeon to the Hospital for the Women of Maryland, Baltimore, etc., and CARA S. HARVEY, A. R. C. P., England.

This translation is from a reprint of the paper in the *Annals of Gynecology*, Feb., 1886, of a communication by Prof. Slavjansky, made to the Chirurgical Society of Russia, at St. Petersburg, November 23d, 1885.

"Porro's operation" (or amputation of the uterus and ovaries), was first performed by Prof. Porro, at Pavia, 1876. Since then, reports of 175 cases have been collected. Porro advised this new operation as a substitute for Cæsarean section. Subsequent authors made it embrace all operations which aim at the simultaneous removal of the uterus and its appendages. This more general definition embraces a number of operations, having for their foundation the same pathological changes and indications of treatment. The pathological condition requiring the operation is rupture of the gravid uterus, the contents of which are poured out more or less completely in the peritoneal cavity.

Laparotomy having now been performed frequently on the death of the fœtus, it has been found that, in some cases, utero-ovarian amputation was indicated (laparo-hystero-oöphorectomia uteri gravidæ ruptæ). Godson,* however, has noted only seven cases of this kind. Halbertsma† had another, in which case the demand for surgical intervention arose on account of rupture of the uterus. But this latter case ought not to be ranked among the class we are now considering because (1) the uterine rupture was incomplete, and the contents of the organ did not pass into the peritoneal cavity; and (2) because Halbertsma, in order to extract the fœtus, had to make an incision in the uterus opposite the rupture. I have tabulated all of Godson's cases of Porro's operation as follows:

**British Med. Jour.*, 1884 and 1885.

†*Centralblatt für Gynäkolog.*, p. 67, 1881.

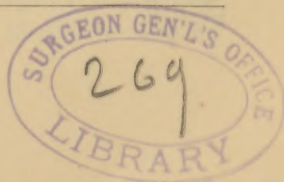


TABLE OF LAPAROTOMIES WITH CONSECUTIVE AMPUTATION OF THE RUPTURED UTERUS, AND OVARIES.
FROM GODSON (*British Medical Journal*, 1884, 1, AND 1885, 1).

	THE YEAR, MONTH AND DATE OF OPER- ATION.	OPERATOR.	HOSPITAL OR Pri- vate House.	AGE.	NUMB R OF AC- COUCHMENTS.	TIME OF OPERATION AFTER RUPTURE.	STATE [CONDITION] OF THE PATIENT.	ISSUES.		CAUSE OF DEATH OF THE MOTHER.	METHOD ADOPTED FOR THE TREAT- MENT OF THE PEDICLE.	DRESSING	LENGTH OF TIME OF OPERATION.	When Reported, Etc.
								FOR MOTHER.	FOR CHILD.					
1	1878 Nov. 22d.	Prévot (Moscow, Russia.).	Hospital	23	4	10 hours.	Peritonitis incipiens.	Died five days after operation.		Repeated hemor- rhage of the pedicle.	Extra-perit Serre-noend	Lister.	45 min.	Amer. Jour. Obstet., 1885, to Harris.
2	1880 Feb. 12th.	Saxinger (Tubing- gen).	Clinique.	20	1	6 hours.	Tympanitis uteri; weak.	Died 33 h'rs after operation.		Collapse Uterine and vaginal gangrene.	Extra-perit Serre-noend	Lister spray.	70 min	Communi- cated to Godson.
3	1881 Mar. 14th.	Pasquali (Rome.)	Clinique.	38	3	Two days in labor; time of rupture not indicat- ed.	Favorable	Died 24 h'rs after operation		Septicemia.	Intra-perit.	Lister without spray. Drain- age.	1 hour.	Annali di Obst. di mi- lano 1881. Vol. III.
4	April 2d.	F. Fornari (Ascoli, Piceno.	Private House.	27		12 hours in labor; time of rupture not indicat- ed.	Unfavor- able.	Died 51 h'rs after operation.		Peritonitis.	Intra-perit.	"	1½ h.	Raccogli- tore medico di Forlì 1881
5	1882 Mar. 21st.	Marchaud (Paris).	Hospital.	26	3	1½ hour.	Very bad.	Died the same day		Peritonitis.	Extra-perit Ecraseur.	"	45 min.	Vol. XV. Personal communi- cations to Godson.
6	Nov. 2d.	Grigg (Landre).	Hospital.	25	2	22 hours.	Collapse.	Died 15 h'rs after operation.		Collapse.	Extra-Perit Serre-noend	"	2¾ h.	Raccogli- tore medico di Forlì, 1883
7	1883 Dec. 18th.	Violani (Italy).	Private House.	27	3	12 hours.	Collapse.	Died 48 h'rs after operation.		Peritonitis septica.	Extra-per t Serre-noend	Lister incom- plete.	40 min	Vol. XX.

From this table we see that the result has always been fatal to the mother; the children were dead before the operations were begun.

The case which interests us to-day, however, by its favorable issue, justifies a high appreciation of Porro's operation: On October 5th, 1885, about 6 P. M., Catherine Efdokimof, age 37, wife of a laborer, in her ninth pregnancy, a week before full term, while crossing a street of Vassili-Ostroff, was knocked down on the rails by a wagon of the 2d Company of Tramways. She fell on the left side of her abdomen, and was run over by the wagon. Copious hæmorrhage occurred from her genitals, and during her transportation home she lost consciousness, but this soon returned. She was not seen by a doctor (Dr. Smolski) until 2 P. M., October 6th, who, recognizing the seriousness of her condition, advised her removal to the Clinique of the Imperial Academy of Medicine.

When examined at the Clinique about 8 P. M., the following facts were noted: A very strong woman, of medium height, rather fat and well developed; surface pale, with a cyanotic appearance, and having a mucousy discharge from the vagina. She was perfectly conscious, but her features were pinched. Blotches of ecchymoses were noticed on the inner half of the left eye brow, and lower part of her abdomen, especially on the left side. No injury to the chest; stomach very tender; temperature 100.4° F.; pulse 138. After consultation with Prof. Bider, because of the gravity of the condition, we decided on an exploratory incision under chloroform. The enlarged abdomen had very thin walls. On palpation, the occipital fontanelle of the fœtus was recognized somewhat below and towards the left of the pit of the stomach. Tracing the suture, a little to the right the body of the fœtus was felt. The fœtus was motionless, and its heart sounds could not be heard. Vaginal examination showed that the os was not dilated but dilatable, and permitted the introduction of two fingers. On entering the uterine cavity, the edge of the placenta was felt attached to the right uterine wall; but on feeling for the left uterine wall, none was found. Bimanual manipulation revealed that nothing but the abdominal wall separated the examining fingers. Proceeding further and higher with the hand in the vagina, it met with the fœtal foot. Between the foot and the exploring fingers were the fœtal membranes; but in no direction could the limits of the uterine rupture be defined.

But all of these facts did not assure us positively that we

had to deal with a complete rupture of the uterus with the passage of the fœtus into the abdominal cavity. For it is plain that in many cases extreme thinness of the abdominal and uterine walls can, on palpation, allow of results absolutely similar to those we here experienced or saw. The history of the patient, the probability of a traumatic lesion, the abundant hæmorrhage from the genital parts as the immediate effect of the fall, the loss of consciousness and the phenomenal collapse—these, added to the information obtained by the objective examination, furnished strong proof in favor of uterine rupture. But was the rupture complete or incomplete? This point of diagnosis was not yet fixed. To sum up, our diagnosis was: Traumatic rupture of the gravid uterus.

As to the exact position of the fœtus, did it pass entirely into the abdominal cavity or did it remain in the sub-peritoneal region? Such questions could only be decided in the course of the obstetrical procedure. In any event, the circumstances called for energetic and immediate treatment, and showed that accouchement must be aided by art. This might be accomplished in two ways—by version or by Cæsarean section. The first mode was very tempting, because it was easy to reach the foot of the fœtus. It was only necessary to break the membranes and we could perform version, which appeared the easier because of the mobility of the fœtus. But considering, on the other hand, that we did not know even approximately the anatomical extent of the uterine rupture; that we were, besides, absolutely ignorant of the possible lesions that might have taken place at the moment of the accident, we could not give the preference to this method. Besides, we apprehended the entrance of air into the uterus, if we broke through the membranes—perhaps even into the peritoneal cavity, thus causing a condition favorable to infection. The second mode of interference—extraction of the fœtus by laparotomy—was more clearly indicated by the probabilities that the uterine rupture was complete, and that the child had passed entirely into the abdominal cavity. Nevertheless, if we had been sure that the uterine rupture was incomplete, and that the fœtus rested below the peritoneum, delivery by version would have been the preferable plan.

Because of the want of clearness in the indications, which made it impossible to obtain a precise diagnosis, we decided to make an exploratory laparotomy. Thanks to the remarkable thinness of the abdominal wall, it was only nec-

essary to make a very small incision. It was also enough to incise the peritoneum only one-half inch or so immediately above the foetal head; for certainly it might be possible for it to assist itself, small as it was, through this incision, if the foetal head was free in the abdominal cavity, or if, on the contrary, it was separated by a layer of tissue. This abdominal incision, performed with thorough antiseptic precautions, does not appear to exercise a notable influence on the general state of the patient.

After having made the exploratory incision and ascertained that the foetus had passed into the abdominal cavity, laparotomy was performed; the continuation of the operation depended on certain conditions. If, contrary to what did take place, we had ascertained that the foetus rested below the peritoneal lining, we would immediately have closed the abdominal incision by sutures, after which we would, by aid of version, have performed version and extraction.

At 11 P. M. the patient was transferred to the clinical ward, which is used for operations which must be performed during the night. This room is provided with a Siemen's gas apparatus, which furnishes a strong light, quite sufficient to permit of these urgent operations. Professors Bider and Smolski, Doctors Ficher, Matveef, Rounge, Makovetsky, and two midwives of the Clinique assisted at the operation. Dr. Ficher acted as first assistant. The patient was chloroformed by Dr. Matveef. At the beginning of the operation the temperature was 100.4° ; pulse, 138; respiration, 25.

The operation was performed with the most minute antiseptic precautions. Incision, following the linea alba, for two centimètres ($\frac{3}{4}$ inch). The opening in the peritoneum, of about two millimètres ($\frac{1}{4}$ inch), was immediately above the foetal head. A mixed liquid, composed of water and blood, of meconium and flakes of cheesy substance, escaped through the opening. One could plainly see through the incision the hair and skin of the foetal head which was situated in the abdominal cavity. The abdominal wall and the peritoneum were then incised with scissors, about twelve centimètres (3 inches); then the foetus, seized by the head, was gently drawn out. The umbilical cord was detached. Introducing the hand into the peritoneal cavity with the object of extracting the after-birth, we ascertained that this organ was still strongly adherent, and, besides, it appeared to adhere to the external surface of the uterus. I believed then that it was preferable to remove the uterus through the abdominal wound than to attempt the cutting off of the

placenta under such doubtful circumstances. This taking away of the uterus, including the placenta, was very easy, and I then had the state of things before me which was unknown to me until that moment. The uterus, torn from one side to the other, in its superior third, was completely turned over in such a way that its internal surface had become external (*eversio uteri intra peritonealis*). The placenta and the membranes were absolutely adherent on all sides. The internal os uteri was hidden by the membranes, which covered it like a bridge. This disposition gave to the uterus the aspect of a champignon (fungoid excrescence), under the top or cap of which we could discover the Fallopian tubes. Because of the grave complication in this state of the uterus, knowing well what hæmorrhage might take place from the detachment of the placenta adherent to an everted uterus, I resolved to apply an elastic ligature around the uterine neck, so as to leave the two ovaries above the ligature. After having, by elastic ligature, prevented danger of hæmorrhage, we cut off the placenta and the fœtal membranes. That effected, the uterine eversion, with the champignon form given to the uterus, was very apparent. As the replacement of the uterus was difficult, if not impossible, I resolved to cut it off with its annexæ. I was glad that the operation was performed quickly, as the patient stood the chloroform very badly. To assure myself against a loss of blood, I applied a second elastic ligature, which secured the neck of the uterus more firmly than the first. Finally, to avoid risk of a secondary hæmorrhage, I put on the pedicle, divided into two segments, two elastic ligatures. This done, the uterus and the ovaries were cut off with a few strokes of the knife. We had then a pedicle of smaller size than that of pedicles obtained in certain cases of laparo myotomies. But, proceeding to the minute examination of the peritoneum, we discovered a general peritonitis. The intestinal canal was intensely vascular, and the surface was like velvet. Hurried by the state of the patient, for the treatment of the pedicle I adopted the extra-peritoneal method. The abdominal wound was closed by nine deep silk sutures—eight sutures for the superior part of the wound, one for the deep part. These sutures also fixed the pedicle in the abdominal wound. I rejected needle fixtures and clamps of all kinds, being confident that the firmness of the pedicle was assured by the sutures in question and the two elastic ligatures which were applied outside the wound. The surface of the wound and the extra-peritoneal part of the pedicle were freely

sprinkled with iodoform. Two layers of iodoform gauze, a small piece of sublimated cotton, and an abdominal bandage constituted the entire treatment. The operation lasted forty-five minutes. The patient was transferred to an isolated room. Returning to consciousness, she declared that she felt better, and that the pains she had previously felt in the abdomen were all gone.

The fœtus, dead before its extraction, was a female, and well developed; length, about one foot; weight, 2,850 grammes (11 lbs). Placenta very much softened. The largest mass of ovoid form, measured twenty centimètres (nearly 5 inches) in width. The dimensions of the other part were: length, eight centimètres ($1\frac{3}{4}$ inches); width, twelve centimètres ($2\frac{3}{4}$ inches). Structure, normal. The total mass weighed 582 grammes (2 lbs. odd). No pathological alterations were appreciable in the uterine tissue; the edges of the wound appeared freely cut and from them much sanguinary effusion of different consistency and thickness. The tubes and ovaries appeared normal. The uterus and annexæ weighed 468 grammes. It was unreasonable to expect her convalescence with no fever. Besides, the presence of numerous ecchymoses upon the tegument made us suspect the existence of very deep lesions.

If we consider the different phases of the case, carefully recorded by my assistant, Dr. Makovetsky, we see that the healing process took place systematically. In every part where we had a right to expect union by first intention it occurred. The stitches were taken away the fourteenth day, except the two which were placed above and below the pedicle. These were removed the twentieth day. That part of the pedicle situated above the elastic ligature commenced to slough away from the first day; at the commencement of the second week after the operation it presented a hard ligneous appearance. The secretion of the part of the wound situated below the pedicle began to suppurate early. The process of separation of the decayed part of the pedicle proceeded regularly falling off on the twenty-third day ~~after~~ a granular surface, about the size of a gold piece of 10 francs. This surface has the appearance of a second navel.

To sum up, the woman is now well; there is no scar like that following some laparo-myotomies in which the extra-peritoneal method of treating the pedicle is adopted. The vaginal portion of the uterus was very small, and situated very high, and was fixed to the abdominal wall. The vagi-

Healing

nal cul-de-sacs are free; on no part is there any pathological swelling. The complications after the operation, which brought on some feverish phenomena, consisted in an intestinal disorder. This developed on the 11th of October (five days after the operation) by profuse diarrhœa, persisting for four days. Temperature rose to $39^{\circ},1$ [$103+^{\circ}\text{F.}$]; pulse 26. On the third day after the operation, albuminuria was found, and occasionally a very large number of red and white globules. This nephritic affection disappeared about the twentieth day. From this time an excoriation about the coccyx was noticed, attended by swelling on each side. The swelling resulted in an abscess, which opened spontaneously in the region of the excoriation, November 11th, or thirty-five days after the operation. For the first time since the operation, the temperature became normal. During the progress of the case, the pulse was absolutely parallel to that of the temperature. Never was there any sign of septicæmia.

This case gives great interest to the following questions: In case of uterine rupture, must one, with a view of extracting the fœtus, practice laparotomy or version? This question has been studied for uterine rupture occurring unexpectedly in the case of labor. Laparotomy has been done, in the last century, under similar circumstances by French surgeons. After Deneux,* the first surgeons who practiced it were Thibaut-Desbois, of Orleans (1775), and in Russia it was advised in 1787 by Professor Maximovitch-Ambodic for cases of complete uterine rupture, with the passage of the fœtus into the abdominal cavity. In the last half of this century, under the double influence of Ameri an statistics (Trask), and from brilliant successes obtained in abdominal surgery, the majority of authors give preference to laparotomy in cases of "uterine rupture taking place during accouchement." This opinion is equally admitted in Germany, and we see that in the first edition of the treatise on Labor, Prof. Schröder mentioned laparotomy as the only method applicable in the case of uterine rupture with the passage of the fœtus into the abdominal cavity. But in the last edition of this treatise, Schröder* is no longer an advocate of laparotomy, but advises version. Doubtless the success which in these latter days has followed operations performed by natural means, and completed by the practice of drainage of the wound, has caused this change of opinion. The fact

**Essai sur la Rupture de la Matrice pendant la Grossesse et l'Accouchement*,—*Th. de Paris*, 1804.

**Voir les Cas Cites par Schæder, Loc. cit.*, p. 638.

that it was possible to modify this mode of procedure was taken from the researches of Bandl on mechanism and the seat of uterine rupture during labor. These researches have demonstrated that the uterus ruptures always at the lowest limit of its inferior distended and thinned segment, or at the level of the neck; besides, the rupture is nearly always transverse, and consequently its edges do not tend to come together rapidly. The result is, that the fœtus, thrown into the peritoneum, can easily be brought across this rupture, which preserves its primitive size, and be extracted by natural means. In such a case, if one were quite sure that at the moment the attempt to operate was made there was not already any infection, it would be right to think that, surrounding ourselves with antiseptic precautions, we should be safely guarding against a secondary infection.

Now, we must agree that accouchement by version is less likely to be accompanied by traumatism than laparotomy. These considerations only relate to cases of typical rupture, occurring during labor. Schröder himself pronounces in favor of laparotomy in some exceptional cases, as, for example, to avoid an excessive hemorrhage. He infers, again, from the works of Bandl that, even during labor (case of Simpson* and of Hoffmeier†), some ruptures occur whose extent and place are singularly unfavorable for the execution of version. And we must expect to meet with irregularities still more considerable when rupture has taken place during the last month of pregnancy, without contraction of the uterus. We have seen that, in the case to-day reported, the rupture occupied the body of the uterus. It was transversely inclined from top to bottom, from right to left, in the anterior wall of the organ. The opening was immense, and under the natural contractions the uterus was placed in a state of complete version.

To sum up, the uterus was turned inside out like the finger of a glove; the internal surface had become external, but kept very nearly its original size. The placenta and membranes were not detached from it. Schröder thinks it not necessary, in cases of uterine rupture occurring during pregnancy, to have recourse to laparotomy. We cannot agree with him, if we can count our case, which, however, may be an exceptional one. Cases of uterine rupture during pregnancy are very rare. The pathological anatomy, and even the morphology of these lesions, have not yet been

**Contributions to Obstetrics and Gynecology*, 1880, p. 150.

†*Centralblatt für Gynäk*, 1881, p. 619.

well studied, and it is possible we may have met in our case conditions quite exceptional. It is easy to picture in what frightful situation we would have been in our case—both operator and subject—if we had performed version. This operation, however, as well as the extraction of the fetus, appeared to be the easier method. But attempts to cut off the placenta would have given rise to frightful hemorrhage. The patient would have succumbed before the termination of the delivery. Also, in cases of rupture of the gravid uterus, when one ignores the exact situation of the lesion, and the accidental disposition of the organ, version could only be very hazardous: it is more reasonable to give the preference to laparotomy. This operation will permit us, besides, to complete objective examination without aggravating, in my opinion—contrary to the fear expressed by by some authors—the state of the patient.

The special interest in our case exists in the fact of the uterine eversion, which gives rise to the following points for consideration: 1st. The indefinite contour of the uterus, in direct relation with the state of eversion, by the presence of the placental plant on its internal surface, becoming external, rendered palpation insufficient. Hence we were obliged to apply the principles of abdominal surgery; consequently we made the abdominal incision, which alone permitted us to give a good account of what we have done. 2d. While anticipating the removal of the placenta and fetal membranes, uterine eversion prevented the possibility of a fatal hemorrhage, and did not allow the entry of air into the peritoneal cavity, and with it infectious substances. We have seen that the fetal membranes extended, like a diaphragm, above the internal os, in such a way that it was absolutely impossible anything could penetrate from the vagina or the cervical canal into the peritoneum. Also this last (peritoneum) became accessible for infection only through laparotomy. I thought it important to remark on this point, because there exists an opinion that the peritoneum of some persons might with impunity be exposed to all kinds of infection. Keith,* for example, speaks thus: "It seems to be simply impossible to kill some women, be the putrid mass left in the pelvis what it may." A like supposition exists from errors of observation; some circumstance of great importance has probably escaped our colleague of Scotland. 3d. Uterine eversion was the true indication here for Porro's operation. Al-

*Keith, *Contribut. to the Surgical Treatment of Tumors of the Abdomen*, p. 19, 1885.

though until this day the statistics relative to utero-ovarian amputation have not established its superiority over the classical Cæsarean section, we may admit that in some particular cases it will be more apt to give results preferable to those we may expect from our operation where a torn uterus is left in the peritoneal cavity.

The impression left, at first sight, from the table presented at the beginning of this communication, raises ourself in our own appreciation; but it is not as if one reckoned from the column where the state of the patient is related; we see there that the prognostic was necessarily grave, except nevertheless for Case 3. In this particular case the conditions are shown in a favorable light. But we are ignorant as to what moment the rupture took place; and the hypothesis of the existence before the operation of a septic peritonitis cannot be overlooked.

